

**Claims**

1. Timepiece comprising a frame (3) in which a watch case (7, 8, 9) is mounted in reversible manner, characterised in that the watch case (7, 8, 9) is rotatable within the frame (3) around a determined axis (22) traversing the flank (24) of the watch case (7, 8, 9) and the inner flank (25) of the frame (3), and in that said flanks (24, 25) of the watch case (7, 8, 9) and of the frame (3) substantially are parts of a same surface of revolution around the determined axis (22).  
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- 10 2. Timepiece according to claim 1, characterised in that the determined axis (22) is an axis of symmetry for each of said flanks (24, 25).
- 15 3. Timepiece according to claim 2, characterised in that said flanks (24, 25) have substantially a same constant height (H).
4. Timepiece according to any of claims 1 to 3, characterised in that said flanks (24, 25) are parts of a sphere (31), the centre of which is a point (O) located on the determined axis (22).
- 20 5. Timepiece according to any of claims 1 to 3, characterised in that said flanks each consist of two first, opposite flank parts (32a, 32b; 34a, 34b) located on either side of the determined axis (22), and of two second, opposite flank parts (33a, 33b; 35a, 35b) intersecting the determined axis (22) and interconnecting the first flank parts (32a, 32b; 34a, 34b), each second flank part together with each first flank part defining a shape discontinuity.  
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6. Timepiece according to any of claims 1 to 5, characterised in that the frame (3) is closed.
- 30 7. Timepiece according to one of claims 1 to 6, characterised in that the frame (3) consists of two frame parts (3a, 3b) superimposed and assembled, the two frame parts (3a, 3b) making possible an assembly of the watch case (7, 8, 9) in the frame (3).

8. Timepiece according to claim 7, characterised in that the frame (3) comprises a blind hole (3f) with hemispherical bottom and consisting of two half holes formed in the two frame parts (3a, 3b), respectively, of the frame (3), this blind hole (3f) receiving an end (5a) of a pin (5) defining the determined axis (22).

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9. Timepiece according to any of claims 1 to 8, characterised in that the watch case (7, 8, 9) comprises a bezel (7) and a back cover (8) or a second bezel, assembled by means of at least one element (16) anchored partly in the bezel (7) and partly in the back cover (8) or second bezel and facing the inner flank (25) of the frame (3) when the watch case (7, 8, 9) is in a rest position parallel to the frame (3), so as to be hidden by the frame (3).

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10. Timepiece according to claim 9, characterised in that it comprises several anchoring elements (16) regularly distributed over the periphery of the watch case (7, 8, 9), and in that each anchoring element (16) is in the shape of a mounting bell housed in a seat of matching shape formed partly in the bezel (7) and partly in the back cover (8) or in the second bezel and in that each anchoring element (16) is fixed by means of a screw (10) to a clockwork movement support ring (9) that is housed between the bezel (7) and the back cover (8) or second bezel.

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11. Timepiece according to any of claims 1 to 10, characterised in that the determined axis (22) coincides with the axis of a crown's tube (6) associated with the watch case (7, 8, 9), this crown's tube (6) traversing the wall of the frame (3) and having a first end (6a) housed in the watch case (7, 8, 9) and a second end (6b) associated with a setting crown (10) outside the frame (3).

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12. Timepiece according to any of claims 1 to 11, characterised in that it further comprises at least one friction joint (28a, 28b) housed in the flank (24) of the watch case (7, 8, 9) or in the inner flank (25) of the frame (3), in order to offer friction with the inner flank (25) of the frame (3) or with the flank (24) of the watch case (7, 8, 9), respectively, upon rotation of the watch case (7, 8, 9) in the frame (3).

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5 13. Timepiece according to any of claims 1 to 12, characterised in that it further comprises first and second opposite rings (23a, 23b) housed in the flank (24) of the watch case (7, 8, 9) or in the inner flank (25) of the frame (3) and surrounding the determined axis (22) so as to suppress the play between said flanks (24, 25) in the direction of the determined axis (22).

10 14. Timepiece according to any of claims 1 to 13, characterised in that the watch case (7, 8, 9) comprises a bezel (7) and a back cover (8) or a second bezel assembled to one another, as well as a clockwork movement support ring (9) housed between the bezel (7) and the back cover (8) or second bezel, in that first and second annular gaskets (29a, 29b) are kept in compression between the bezel (7) and the ring (9) and between the back cover (8) or second bezel and the ring (9), respectively, and in that a third annular gasket (30) is kept in compression between the bezel (7) and a glass (13) mounted in the bezel (7).

15 15. Timepiece according to any of claims 1 to 14, characterised in that it further comprises a support (1) provided with elements (2a, 2b) for attachment to a bracelet, and in that the frame (3) is articulated at one of its ends with one end of the support (1), so as to be able to assume a rest position where the frame (3) is superimposed upon the support (1), and an open position allowing the watch case (7, 8, 9) to be turned over in the frame (3).

20 16. Timepiece according to claim 15, characterised in that it further comprises means (26a – 26d) for unlockably locking the frame (3) in its rest position.

25 17. Timepiece according to claim 16, characterised in that said means for unlockably locking the frame in its rest position comprise ratchet elements (26a – 26d) housed in two crown-protecting projections (1a, 1b) of the support (1) that are located on either side of a setting crown (10) associated with the watch case (7, 8, 9).

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18. Timepiece according to any of claims 1 to 17, characterised in that it consists of a wristwatch.

**Summary**

The timepiece comprises a frame (3) in which a watch case (7, 8, 9) is reversibly mounted. The watch case (7, 8, 9) is rotatable within the frame (3) around a determined axis (22) traversing the flank (24) of the watch case (7, 8, 9) and the inner flank (25) of the frame (3). The flank (24) of the watch case (7, 8, 9) and the inner flank (25) of the frame (3) substantially are parts of a same surface of rotation around the determined axis (22) so as to reduce the gap between the frame (3) and the watch case (7, 8, 9).